

## MACHINE TRANSLATION OF JP2001006278-A (Yamashita et al.)

### TECHNICAL FIELD

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[Field of the Invention] This invention relates to a data reproduction apparatus, a data supply apparatus, and a data supply system, and in detail, For example, it was recorded on the removable recording medium, it is related with the data reproduction apparatus, data supply apparatus, and data supply system for playing digital data, such as music and text, or supplying the above-mentioned digital data to the above-mentioned recording medium.

### PRIOR ART

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[Description of the Prior Art] The environment which can deliver and receive digital data, such as music and an image, between a supplier or a user by the archive medium of comparatively low speed means of communication and small capacity is ready with progress of highly efficient coding technology in recent years, the spread of the Internet, etc. Since it becomes easy compared with the case where it is an analog signal to perform transmission, a copy, etc., maintaining product quality when dealing with music, an image, etc. as digital data, a package subject's sales styles and rental configurations which have so far been performed about CD, videotape, etc. may be changed. For example, even if a user thinks that he wants the package in which two or more of its favorite artists' musical piece was stored, in the sales styles which made the package the subject. The user could not but purchase or rent the package in which each artist's musical piece was stored, respectively, income of the musical piece for which it asks in order that he may hear it had to be carried out, and it could not but record on archive media prepared separately, such as a cassette tape and MD. On the other hand, if a user specifies the musical piece for which he asks as JP,5-135228,A etc. with the art of a statement, it is possible to purchase only the digital data corresponding to the musical piece for which it asks with the gestalt of an electrical signal, and to receive it. With the art of a statement, a user uses a portable memory card with a regenerative function for the above-mentioned gazette as a music reproduction machine. A memory card with the above-mentioned regenerative function is provided with digital data, such as music, from the terminal unit which plays the role of an information server. The above-mentioned terminal unit is equivalent to vending machines, such as tobacco and juice, and the above-mentioned digital data is accumulated in the hard disk etc. to build in. It is connected with the selling agency in the digital telecommunication circuit, and it can fill up digital data if needed. When a user is going to receive offer of digital data, a memory card with the above-mentioned regenerative function is connected to the above-mentioned terminal unit via a connector. In the above-mentioned terminal unit, since the genre and contents name of digital data are displayed hierarchical, a user will choose the contents which he wishes based on the display information. If a contents name is specified by the user, when the contents concerned are accumulated in the hard disk of the terminal unit, only the contents specified via the bus and the connector from the above-mentioned hard disk are transmitted to a memory card with the above-mentioned regenerative function. If the contents concerned are not accumulated in a terminal unit, after the contents concerned are transmitted to a terminal unit from a selling agency through a communication line, it is provided for a memory card with the above-mentioned regenerative function. By the way, especially when selling digital data like the above-mentioned example with the gestalt of an electrical signal, preventing the illicit copy to contents

poses a problem. Since digital data does not produce signal deterioration with a copy, either, if an illicit copy is not prevented, worth of contents to provide will fall relatively. Of course, the donor who provides contents cannot carry out parenchyma of providing contents to such a selling system, either, if self copyright is not fully protected. So, in art given in the above-mentioned gazette, when reproducing a digital signal, the password is required of the user. This password is told to a user at the time of the memory card purchase with the above-mentioned regenerative function. If the password which the user entered, and the password registered into the memory card with the above-mentioned regenerative function are not in agreement, reproduction of digital data is not performed. The electronic rental system which uses satellite connection, CATV, etc. for a communication line, and rents electronic data is indicated by JP,8-181965,A. Although the rental which made the package the subject is not performed but only electronic data is rented also with this electronic rental system, in addition to preventing an illicit copy in this case, it will be necessary to specify a rental period. In the above-mentioned electronic rental system, the surveillance of an illicit copy or a rental period is performed using the public key.

## EFFECT OF THE INVENTION

[Effect of the Invention]According to the data reproduction apparatus given in any 1 paragraph of above-mentioned claims 1-6, as explained above. For example, when the device information which includes beforehand the characteristic data of the device concerned, the kind of reproduction program currently held, etc. in recording media, such as semiconductor media for recording digital data, such as music data and alphabetic data, is written in and the above-mentioned digital data is actually reproduced. Since the environment which needs the required information defined based on the above-mentioned device information to be acquired and reproduce the above-mentioned digital data based on the acquired device information is automatically set up when digital data is supplied to \*\* and the above-mentioned recording medium, The cheap data reproduction apparatus which can reproduce the above-mentioned digital data can be provided without a user being strongly conscious of a compression encoding system, the code for the prevention from an illicit copy, etc. According to the data supply apparatus given in any 1 paragraph of above-mentioned claims 7-11. For example, when recording digital data, such as music data and alphabetic data, on recording media, such as semiconductor media, the device information about the data reproduction apparatus currently beforehand recorded on the recording medium concerned is detected, and based on said detected device information by a user. Since required information required to reproduce the specified digital data on the data reproduction apparatus concerned is distinguished and the required information distinguished [ above-mentioned ] is recorded on the recording medium concerned with the above-mentioned digital data, A user can provide the data supply apparatus which can receive supply of the above-mentioned digital data, without being strongly conscious of a compression encoding system, the code for the prevention from an illicit copy, etc. According to the data supply apparatus given in any 1 paragraph of above-mentioned claims 12-19. Digital data, such as music data and alphabetic data, for example, via recording media, such as semiconductor media. When supplying a data reproduction apparatus from a data supply apparatus, based on the device information which the device information which the device information about the device concerned is first recorded on the above-mentioned recording medium by the above-mentioned data reproduction apparatus side, and then is recorded on the recording medium concerned by the above-mentioned data supply apparatus side was detected,

and was detected [ above-mentioned ] continuously, After required information required to reproduce the digital data specified by the user on the data reproduction apparatus concerned is distinguished, the required information distinguished [ above-mentioned ] with the above-mentioned digital data. Although the required information which was recorded on the recording medium concerned and then was recorded on the recording medium concerned in the above-mentioned data reproduction apparatus is acquired and reproduces the above-mentioned digital data based on the required information acquired [ above-mentioned ]. Since environment is automatically set up for necessity, a user is able to receive supply of the above-mentioned digital data, without being strongly conscious of a compression encoding system, the code for the prevention from an illicit copy, etc., and a cheaply available data supply system can be provided.

## TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention]In art given in above-mentioned JP,5-135228,A, when digital data was reproduced with a memory card with the above-mentioned regenerative function, many procedures, such as powering on, reproduction operation, and password input, had to be stepped on, and there was a troublesome field. Although various methods existed in carrying out compression encoding of music, the image, etc., even if the memory card with the above-mentioned regenerative function supported two or more compression encoding systems, automatic processing to which reproduction operation is made to carry out was not fully able to be performed, without a user being strongly conscious of the method. When digital data was recorded on a memory card with the above-mentioned regenerative function, even if free space produced, the free space was not utilized effectively. Like the above-mentioned electronic rental system, when electronic data was delivered and received using communication lines, such as satellite connection and CATV, many equipment, such as a data communication unit, a terminal unit, and a satellite broadcasting tuner, was needed for the user side, and there was a problem which introduction cost attaches highly. In order that this invention may solve the technical problem in such a Prior art. It is alike and A data reproduction apparatus, a data supply apparatus, And a data supply system. Improve and a compression encoding system, the code for the prevention from an illicit copy, etc. It aims at providing the cheaply available data reproduction apparatus which performs the procedure for it automatically, and reproduces or supplies digital data without a user being strongly conscious, a data supply apparatus, and a data supply system.

## MEANS

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[Means for Solving the Problem]To achieve the above objects, an invention concerning claim 1, In a data reproduction apparatus which reproduces digital data recorded on a removable recording medium, A device information storage means to record device information about the device concerned on the above-mentioned recording medium beforehand, Are based on device information recorded by the above-mentioned device information storage means, and although it reproduces on the device concerned, the above-mentioned digital data. A required-information acquisition means which acquires required required information from the above-mentioned recording medium with which the above-mentioned digital data was recorded, Based on required information acquired by the above-mentioned required-information acquisition means, an automatic setting means to set up automatically environment required to reproduce the above-

mentioned digital data is provided, and it is constituted as a data reproduction apparatus characterized by things. In a data reproduction apparatus given in above-mentioned claim 1 an invention concerning claim 2, The above-mentioned digital data. A reproduction program for reproducing. A memory measure to memorize [ one or more ] and which can be written in. Information about a reproduction program contained in required information which records device information in which a preparation and the above-mentioned device information storage means include information about a reproduction program memorized by memory measure of the device concerned on the above-mentioned recording medium, and by which the above-mentioned required-information acquisition means was recorded on the above-mentioned recording medium. It acquires, and based on information about a reproduction program acquired by the above-mentioned required-information acquisition means, the above-mentioned automatic setting means transmits a reproduction program corresponding to the above-mentioned digital data to the above-mentioned memory measure, and makes things the gist.

[0005]In above-mentioned claim 1 or a data reproduction apparatus given in 2 an invention concerning claim 3, If equipped with the above-mentioned recording medium, wearing of the above-mentioned recording medium is detected and a power supply of a device is switched on, and the above-mentioned device information storage means or the above-mentioned required-information acquisition means, and the above-mentioned automatic setting means will be started, and let things be the gist. In a data reproduction apparatus of a statement, the above-mentioned device information includes characteristic data peculiar to a device in any 1 paragraph of above-mentioned claims 1-3, and an invention concerning claim 4 controls permission and restriction about reproduction of the above-mentioned digital data based on the above-mentioned characteristic data, and makes things the gist. An invention concerning claim 5 makes it the gist for the above-mentioned recording media to be semiconductor media in a data reproduction apparatus given in any 1 paragraph of above-mentioned claims 1-4. An invention concerning claim 6 makes it the gist for the above-mentioned digital data to be both music data, and both [ either or ] in a data reproduction apparatus given in any 1 paragraph of above-mentioned claims 1-5.

[0006]According to the data reproduction apparatus given in any 1 paragraph of above-mentioned claims 1-6. For example, when device information which includes beforehand characteristic data of the device concerned, a kind of reproduction program currently held, etc. in recording media, such as semiconductor media for recording digital data, such as music data and alphabetic data, is written in and the above-mentioned digital data is actually reproduced. Since environment which needs required information defined based on the above-mentioned device information to be acquired and reproduce the above-mentioned digital data based on acquired device information is automatically set up when digital data is supplied to \*\* and the above-mentioned recording medium, A cheap data reproduction apparatus which can reproduce the above-mentioned digital data can be provided without a user being strongly conscious of a compression encoding system, a code for prevention from an illicit copy, etc.

[0007]In a data supply apparatus with which an invention concerning claim 7 supplies digital data specified as a recording medium removed from a data reproduction apparatus which reproduces digital data by user, A device information detection means to detect device information about the above-mentioned data reproduction apparatus beforehand recorded on the above-mentioned recording medium, A required-information discriminating means which distinguishes required information required to reproduce digital data specified [ above-mentioned ] on the data reproduction apparatus concerned based on the above-mentioned device

information detected by the above-mentioned device information detection means, A recording device which records required information distinguished by the above-mentioned required-information discriminating means by the above-mentioned recording medium with which digital data specified [ above-mentioned ] is supplied is provided, and it is constituted as a data supply apparatus characterized by things. If above-mentioned claim 7 is equipped with the above-mentioned recording medium in a data supply apparatus of a statement, an invention concerning claim 8 detects wearing, switches on a power supply of a device, will start the above-mentioned device information detection means, a required-information discriminating means, and a recording device, and will make things the gist.

[0008]In above-mentioned claim 7 or a data supply apparatus given in 8 an invention concerning claim 9, A free space detection means to detect free space of the above-mentioned recording medium with which the above-mentioned digital data and device information are not recorded, According to the above-mentioned free space detected by the above-mentioned free space detection means, a message information addition means which adds message information addressed to a user is provided, and let things be the gist. An invention concerning claim 10 makes it the gist for the above-mentioned recording media to be semiconductor media in a data supply apparatus given in any 1 paragraph of above-mentioned claims 7-9. An invention concerning claim 11 makes it the gist for the above-mentioned digital data to be both music data, and both [ either or ] in a data supply apparatus given in any 1 paragraph of above-mentioned claims 7-10.

[0009]According to the data supply apparatus given in any 1 paragraph of above-mentioned claims 7-11. For example, when recording digital data, such as music data and alphabetic data, on recording media, such as semiconductor media, device information about a data reproduction apparatus currently beforehand recorded on the recording medium concerned is detected, and based on said detected device information by a user. Since required information required to reproduce specified digital data on the data reproduction apparatus concerned is distinguished and required information distinguished [ above-mentioned ] is recorded on the recording medium concerned with the above-mentioned digital data, A user can provide a data supply apparatus which can receive supply of the above-mentioned digital data, without being strongly conscious of a compression encoding system, a code for prevention from an illicit copy, etc.

[0010]A data reproduction apparatus which reproduces digital data in which an invention concerning claim 12 was recorded on a removable recording medium, In a data supply system possessing a data supply apparatus which supplies digital data specified by user to the above-mentioned recording medium, A device information detection means by which the above-mentioned data supply apparatus detects device information about the above-mentioned data reproduction apparatus beforehand recorded on the above-mentioned recording medium, A required-information discriminating means which distinguishes required information required to reproduce digital data specified [ above-mentioned ] on the data reproduction apparatus concerned based on the above-mentioned device information detected by the above-mentioned device information detection means, Digital data specified [ above-mentioned ] to the supplied above-mentioned recording medium by the above-mentioned required-information discriminating means. A required-information acquisition means which possesses a recording device which records distinguished required information and in which the above-mentioned data reproduction apparatus acquires the above-mentioned required information recorded by the above-mentioned recording device from the above-mentioned recording medium, An automatic setting means to set up automatically environment required to reproduce digital data which was

supplied to the same recording medium and which was specified [ above-mentioned ] based on the above-mentioned required information acquired by the above-mentioned required-information acquisition means is provided, and it is constituted as a data supply system characterized by things.

[0011]In a data supply system given in above-mentioned claim 12 an invention concerning claim 13, It is a thing provided with a memory measure which memorizes one or more reproduction programs for the above-mentioned data reproduction apparatus to reproduce digital data supplied to the above-mentioned recording medium and which can be written in. Are, information about a reproduction program memorized by the above-mentioned memory measure of the data reproduction apparatus concerned is included in the above-mentioned device information, and the above-mentioned required-information discriminating means of the above-mentioned data supply apparatus based on device information recorded on the above-mentioned recording medium to the above-mentioned memory measure of the data reproduction apparatus concerned. Distinguish whether a reproduction program corresponding to digital data specified [ above-mentioned ] is memorized, and by the above-mentioned required-information discriminating means. When there is distinction that a reproduction program corresponding to digital data specified [ above-mentioned ] is not memorized by the above-mentioned memory measure of the data reproduction apparatus concerned, The above-mentioned recording device records a reproduction program corresponding to digital data specified [ above-mentioned ] at least on the above-mentioned recording medium, and makes things the gist.

[0012]In a data supply system given in above-mentioned claim 13 an invention concerning claim 14, If the above-mentioned data reproduction apparatus is equipped with the above-mentioned recording medium, the data reproduction apparatus concerned will detect wearing of the above-mentioned recording medium, and will switch on a power supply, If the above-mentioned required-information acquisition means and the above-mentioned automatic setting means are started and the above-mentioned required information is acquired from the above-mentioned recording medium by the above-mentioned required-information acquisition means, The above-mentioned automatic setting means transmits a reproduction program recorded on the above-mentioned recording medium to the above-mentioned memory measure based on the above-mentioned required information, and makes things the gist. In a data supply system given in any 1 paragraph of above-mentioned claims 12-14 an invention concerning claim 15, The above-mentioned device information includes characteristic data peculiar to a device, controls permission and restriction based on the above-mentioned characteristic data about reproduction of the above-mentioned digital data based on the above-mentioned data reproduction apparatus, and makes things the gist. In a data supply system given in any 1 paragraph of above-mentioned claims 12-15 an invention concerning claim 16, If the above-mentioned data supply apparatus is equipped with the above-mentioned recording medium, wearing is detected, a power supply is switched on, and the above-mentioned data supply apparatus will start the above-mentioned device information detection means, the above-mentioned required-information discriminating means, and the above-mentioned recording device, and will make things the gist. In a data supply system given in any 1 paragraph of above-mentioned claims 12-16 an invention concerning claim 17, A free space detection means by which the above-mentioned data supply apparatus detects free space of the above-mentioned recording medium with which the above-mentioned digital data and device information are not recorded, According to the above-mentioned free space detected by the above-mentioned free space detection means, a message information addition means which adds message information addressed to a user is provided, and let things

be the gist. An invention concerning claim 18 makes it the gist for the above-mentioned recording media to be semiconductor media in a data supply system given in any 1 paragraph of above-mentioned claims 12-17. An invention concerning claim 19 makes it the gist for the above-mentioned digital data to be both music data, and both [ either or ] in a data supply system given in any 1 paragraph of above-mentioned claims 12-18.

[0013]According to the data supply apparatus given in any 1 paragraph of above-mentioned claims 12-19. Digital data, such as music data and alphabetic data, for example, via recording media, such as semiconductor media. When supplying a data reproduction apparatus from a data supply apparatus, based on device information which device information which device information about the device concerned is first recorded on the above-mentioned recording medium by the above-mentioned data reproduction apparatus side, and then is recorded on the recording medium concerned by the above-mentioned data supply apparatus side was detected, and was detected [ above-mentioned ] continuously, After required information required to reproduce digital data specified by user on the data reproduction apparatus concerned is distinguished, required information distinguished [ above-mentioned ] with the above-mentioned digital data. Although required information which was recorded on the recording medium concerned and then was recorded on the recording medium concerned in the above-mentioned data reproduction apparatus is acquired and reproduces the above-mentioned digital data based on required information acquired [ above-mentioned ]. Since environment is automatically set up for necessity, a user is able to receive supply of the above-mentioned digital data, without being strongly conscious of a compression encoding system, a code for prevention from an illicit copy, etc., and a cheaply available data supply system can be provided.

[0014]

[Embodiment of the Invention]Hereafter, with reference to an accompanying drawing, it explains per embodiment of the invention, and an understanding of this invention is presented. Following embodiments are concrete examples of this invention, and are not the things of the character which limits the technical scope of this invention. The data supply system concerning the 1 embodiment of this invention contains a data reproduction apparatus and a data supply apparatus. The above-mentioned data reproduction apparatus is materialized as a small data reproduction apparatus aiming at the cellular phone which plays the music digital data recorded, for example on removable semiconductor media. On the other hand, the above-mentioned data supply apparatus to the above-mentioned semiconductor media removed from the above-mentioned data reproduction apparatus which plays music digital data by a user. Shape is taken as a data supply apparatus which supplies the specified music digital data, and it is installed in the state where it was included in the vending machine of drinking water for example, or is installed in a convenience store, a railroad station, etc. as a vending machine for exclusive use. It is the outline composition of the above-mentioned data reproduction apparatus which is shown in drawing 1. The above-mentioned data reproduction apparatus P the whole device. The microcomputer 11, semiconductor media to control. (An example of a recording medium) According to the command signal from the program memory (an example of a memory measure) 13, and the above-mentioned microcomputer 11 with which the reproduction program for playing the connector 12 equipped with M and the music digital data recorded on the above-mentioned semiconductor media M is memorized, DAC15 for carrying out output power of sound of the music digital data played by DSP14 which reads a reproduction program from the above-mentioned program memory 13, and plays the above-mentioned music digital data, and the above-mentioned DSP14, the amplifier 16, and the earphone 17 are included. A device



information storage means by which the data reproduction apparatus of this invention records the device information about the device concerned on the above-mentioned semiconductor media M beforehand, Are based on the device information recorded by the above-mentioned device information storage means, and although it plays on the device concerned, the above-mentioned music digital data. The required-information acquisition means which acquires required required information from the above-mentioned semiconductor media M on which the above-mentioned music digital data was recorded, These functions are realized by the above-mentioned microcomputer 11 although an automatic setting means to set up automatically environment required to play the above-mentioned music digital data is provided as a function based on the required information acquired by the above-mentioned required-information acquisition means.

[0015]The outline composition of the above-mentioned data supply apparatus is shown in drawing 2. As shown in drawing 2, the above-mentioned data supply apparatus S contains the accumulation means 23 grade in which the microcomputer 21 which controls the whole device, the connector 22 equipped with the above-mentioned semiconductor media M, two or more compression encoding programs, and music digital data are accumulated. A device information detection means by which the data supply apparatus of this invention detects the device information about the above-mentioned data reproduction apparatus beforehand recorded on the above-mentioned semiconductor media M, The required-information discriminating means which distinguishes required information required to play the music digital data specified by the user on the data reproduction apparatus concerned based on the above-mentioned device information detected by the above-mentioned device information detection means, These functions are realized by the above-mentioned microcomputer 21 although the recording device which records the required information distinguished by the above-mentioned required-information discriminating means by the above-mentioned recording medium with which the digital data specified [ above-mentioned ] is supplied is provided as a function. Although a user will equip the above-mentioned data supply apparatus S with the semiconductor media M formatted in the above-mentioned data reproduction apparatus P and music digital data will be purchased or rented in the above-mentioned data supply system, It becomes important to prevent use of inaccurate music digital data, and to provide a user with convenience.

[0016]Hereafter, the details of above-mentioned data reproduction apparatus P, above-mentioned data supply apparatus S, and the data supply system provided with both are explained. In the above-mentioned data supply system, that music digital data is supplied by the above-mentioned data supply apparatus S is the semiconductor media M beforehand formatted by the above-mentioned data reproduction apparatus P which a user owns. When the switch 18 of the above-mentioned data reproduction apparatus P is pressed by the user, it is started, and also the format by the above-mentioned data reproduction apparatus P can detect having been equipped with the above-mentioned semiconductor media M, and can also be made to start it automatically. The example of composition of the loading slot of the above-mentioned semiconductor media M formed in the case of the above-mentioned data reproduction apparatus P is shown in drawing 3. As shown in drawing 3, the loading slot 121 of the above-mentioned semiconductor media M is formed in the case of the above-mentioned data reproduction apparatus P at rectangular parallelepiped shape. The above-mentioned connector 12 is formed in the deepest part of the above-mentioned loading slot 121 (drawing 3 un-illustrating). If the above-mentioned semiconductor media M are inserted in the above-mentioned loading slot 121 along with the guide 122 which constitutes the above-mentioned loading slot 121, the above-mentioned connector 12 will be suitably connected with the above-mentioned semiconductor media M. The



electrode 123 of the couple other than the above-mentioned connector 12 is formed in the depths of the above-mentioned loading slot 121. These electrodes 123 are connected to the above-mentioned microcomputer 11. Among the above-mentioned electrodes 123, the electrode 123b of the drawing bottom will be made the drawing upper part, if the above-mentioned semiconductor media M are inserted, and the heights 124 provided near [ the ] the tip contact the electrode 123a of the drawing upper part.

[0017] Here, the example of composition of the connection circuit which connects a microcomputer with the above-mentioned electrode is shown in drawing 4. Drawing 5 is a figure showing the voltage transition of the A point in above-mentioned drawing 4. Switch Sw1 of drawing 4 corresponds to the electrode 123 of the above-mentioned couple. When the above-mentioned semiconductor media M are not inserted, the above-mentioned switch Sw1 is open. At this time, the potential of the A point shown in drawing 4 is battery voltage  $V_{bat}$ , as shown in drawing 5. Insertion of the above-mentioned semiconductor media M will close the above-mentioned switch Sw1. If the above-mentioned switch Sw1 is closed, the potential of the above-mentioned A point will once fall rapidly. The capacitor C1 takes for charging, and goes up gradually, and the potential of the above-mentioned lowered A point reaches soon the value to which the partial pressure of the above-mentioned battery voltage  $V_{bat}$  was carried out by the resistance R1 and the resistance R2. Thus, the pulse formed by once reducing potential rapidly is inputted into invert AND circuit 41. If the above-mentioned pulse is inputted into invert AND circuit 41, RS latch 42 for power source monitors will be set. A set of said RS latch 42 will send out an operating command to the power supply converter 43. Thereby, the current supply to the whole circuit is started and the power supply of voltage  $V_{cc}$  is supplied also to the above-mentioned microcomputer 11. The microcomputer 11 can be made to distinguish the case where the switch 18 formed in a case was pressed by the user, and a switch input occurs, and the case where there is wearing of the above-mentioned semiconductor media M, in the example of a circuit of drawing 4. For this reason, in the example of a circuit of drawing 4, RS latch 44 is connected between the above-mentioned A point and the microcomputer 11. When one [ wearing of the above-mentioned semiconductor media M / switch Sw1 ], above-mentioned RS latch 42 is set by the pulse produced at the above-mentioned A point, and also above-mentioned RS latch 44 is set. A set of above-mentioned RS latch 44 will input a pulse into the I/O input of the above-mentioned microcomputer 11. On the other hand, when the switch input by the above-mentioned switch 18 grade occurs, a pulse is inputted into above-mentioned invert AND circuit 41, and above-mentioned RS latch 42 is set, but above-mentioned RS latch 44 is not set. That is, when a pulse input is in the I/O input of the above-mentioned microcomputer 11, it is possible to distinguish that above-mentioned RS latch 42 was set by wearing of the above-mentioned semiconductor media M.

[0018] Starting of the above-mentioned microcomputer 11 will perform distinction of whether the above-mentioned semiconductor media M are then inserted in the above-mentioned loading slot 121. Since it thinks also when the user has not equipped with the above-mentioned semiconductor media M when above-mentioned RS latch 42 is set by the switch input by the above-mentioned switch 18 grade, this distinction is required. The above-mentioned distinction is performed based on whether the voltage of the above-mentioned A point is power-supply-voltage  $V_{cc}$ , for example. When the voltage of the above-mentioned A point is the above-mentioned power-supply-voltage  $V_{cc}$ , the above-mentioned switch Sw1 is turned off, and it will be distinguished if the above-mentioned semiconductor media M are not inserted. On the other hand, when the voltage of the above-mentioned A point is not the above-mentioned power-

supply-voltage  $V_{cc}$ , are one [ the above-mentioned switch Sw1 ], and if the above-mentioned semiconductor media M are inserted, it will be distinguished. If the above-mentioned semiconductor media M are inserted in the above-mentioned loading slot 121, distinction of whether the above-mentioned semiconductor media M are already formatted will be performed. Now, supposing the above-mentioned semiconductor media M are intact, the format of the above-mentioned semiconductor media M will be automatically started with the above-mentioned microcomputer 11. He is able for a user to press a switch and to direct a format. [0019]The above-mentioned microcomputer 11 formats the above-mentioned semiconductor media M, and also records device information, including the characteristic data (ID) of the data reproduction apparatus P concerned, etc., on the above-mentioned semiconductor media M. This device information includes the information about the resources (the frequency in use of CPU, the maximum clock, a loaded memory, the reproduction program to hold, and a reproduction program, a public key, etc.) of the data reproduction apparatus P concerned besides above-mentioned ID. Above-mentioned ID is the serial number etc. which were given one by one to all the above-mentioned data reproduction apparatus P manufactured, for example. In addition to this, above-mentioned ID should just be numerals, a number, etc. which can determine each data reproduction apparatus P as a meaning. The above-mentioned reproduction program which holds says the kind etc. of reproduction program memorized by the above-mentioned program memory 13 with which the above-mentioned data reproduction apparatus P is provided. The reproduction program memorized by the above-mentioned program memory 13 is a decoded program corresponding to compression encoding forms, such as TwinVQ developed by NTT Cyber Space Laboratories (old NTT human interface research institute), for example. That from which a sampling frequency besides that from which the above-mentioned compression encoding form is different is different is also included in the kind of the above-mentioned reproduction program. For example, it shall be treated as a kind with a sampling frequency different from the reproduction program which is 44 kHz, and the reproduction program whose sampling frequency is 22 kHz. The frequency in use of the above-mentioned reproduction program says the frequency in use of each reproduction program memorized by the above-mentioned program memory 13. The secret key corresponding to the above-mentioned public key is recorded on the one device concerned. As for the above-mentioned secret key, being recorded in hardware is more preferred than being held as data. Recording processing with the microcomputer 11 of the above device information corresponds to the device information storage means in the data reproduction apparatus of this invention.

[0020]If the format of the above-mentioned semiconductor media M is completed, it will be made to display on LCD19 of the above-mentioned data reproduction apparatus P, and that will be told to a user. The user can receive supply of music digital data from above-mentioned data supply apparatus S by equipping the above-mentioned data supply apparatus S with the above-mentioned semiconductor media M formatted as mentioned above using data reproduction apparatus P which self owns. Here, the flow from the data supply by the above-mentioned data supply apparatus to the data reproduction by the above-mentioned data reproduction apparatus is briefly shown to drawing 6. If the above-mentioned data supply apparatus S is equipped with the above-mentioned formatted semiconductor media M, the wearing will be detected by the same mechanism as the above-mentioned data reproduction apparatus P. Detection of wearing of the above-mentioned semiconductor media M will start the microcomputer 21 of the above-mentioned data supply apparatus S. Starting of the above-mentioned microcomputer 21 will read the device information (a public key is included) which should be recorded on the above-

mentioned semiconductor media M via the above-mentioned connector 22 (S601). When equipped with the above-mentioned semiconductor media M which are not formatted, that is displayed on LCD24 of the above-mentioned data supply apparatus S, and data supply processing is stopped. The reading processing of the above-mentioned device information with the above-mentioned microcomputer 21 corresponds to the device information detection means of the data supply apparatus in this invention. On the other hand, if the above-mentioned device information currently recorded on the above-mentioned semiconductor media M is read to the above-mentioned microcomputer 21, the contents name of the music digital data currently recorded on the accumulation means 23 of the above-mentioned data supply apparatus S will be displayed on the above-mentioned LCD24. At this time, the method with which compression encoding of the contents concerned besides a contents name was carried out, the tone-quality information according to a sampling frequency, etc. are displayed on the above-mentioned LCD24. After there is not necessarily necessity that these information is displayed collectively, displaying only the contents name first and choosing a contents name, it may be made to display the above-mentioned tone-quality information etc. It may carry out as [ display / in the above-mentioned compression encoding system and the state where it classified according to the genre etc. / the above-mentioned contents name ]. Various methods, such as TwinVQ as stated above, other MP3, ATRAC(s), can be used for the above-mentioned compression encoding system. Although it may be made to display a sampling frequency directly about the above-mentioned tone-quality information, in order to promote a user's understanding, CD quality, FM quality, etc. may be displayed. Linear PCM coding could only be performed and that in which compression encoding was already carried out by predetermined compression encoding form may be used for the music digital data currently recorded on the above-mentioned accumulation means 23. When the above-mentioned music digital data is recorded on the above-mentioned accumulation means 23 in the form of linear PCM coding etc. and the above-mentioned data reproduction apparatus P is provided with the music digital data concerned, processing of compression encoding is performed using DSP which is not illustrated. On the other hand, where compression encoding is carried out the above-mentioned music digital data beforehand, when being recorded on the above-mentioned accumulation means 23, only the number according to the kind of compression encoding form which can be provided needs to prepare the same music digital data for the above-mentioned accumulation means 23.

[0021] Although all of the music digital data currently recorded on the accumulation means 23 of the above-mentioned data supply apparatus S, the compression encoding system, tone-quality information, etc. may be displayed on the above-mentioned LCD24, what cannot be used by data reproduction apparatus P is contained. Then, the above-mentioned microcomputer 21 distinguishes available music digital data, a compression encoding system, tone-quality information, etc., and it may be made to display on the above-mentioned LCD24 based on the device information which was recorded on the above-mentioned semiconductor media M, and was detected with the above-mentioned microcomputer 21. That the above-mentioned data reproduction apparatus P cannot perform reproduction by a comparatively high sampling frequency, for example from the relation of a resource based on the above-mentioned device information with the above-mentioned microcomputer 21. When distinguished, the data reproduction apparatus P concerned displays chisels, such as refreshable tone-quality information. A user chooses the contents name of music digital data for which it wishes, compression encoding form, tone-quality information, etc. based on these information that did in this way and was displayed on the above-mentioned LCD24. Information, including the above-

mentioned contents name as which the user pressed and chose the button switch 25, compression encoding form, tone-quality information, etc., is sent out to the above-mentioned microcomputer 21. Whether if information, including the above-mentioned contents name etc., is supplied to the above-mentioned microcomputer 21, the reproduction program corresponding to the compression encoding form of the specified sampling frequency is recorded on the program memory 13 of data reproduction apparatus P which formatted the semiconductor media M concerned. It is distinguished based on the reproduction program which is contained in the above-mentioned device information and to hold. When the reproduction program corresponding to the compression encoding form of the sampling frequency which the user specified as the program memory 13 of data reproduction apparatus P which formatted the semiconductor media M concerned is recorded, with the above-mentioned microcomputer 21. When distinguished, the music digital data corresponding to a contents name, a compression encoding system, tone-quality information, etc. which were specified by the user is read from the above-mentioned accumulation means 23.

[0022]If music digital data is read from the above-mentioned accumulation means 23, where required information required for the music digital data concerned and its playback is locked using the public key contained for example, in the above-mentioned device information, with the above-mentioned microcomputer 21, it will be recorded on the above-mentioned semiconductor media M (S602). The data of the kind of the above-mentioned compression encoding system, the period when the music digital data concerned besides being tone-quality information etc. is available, etc. is also contained in required information required for the above-mentioned playback. If it is a rental when the above-mentioned period is expressed with days, the time when the music digital data concerned was recorded, and its available days will be recorded on the above-mentioned semiconductor media M. Since most things for which a rental attains to days corresponding in several cannot be considered when a user purchases the music digital data concerned, it is made to make the above-mentioned data reproduction apparatus P judge as indefinite the maximum of the data assigned to rental days. Thereby, the case of a rental, and in the case of purchase, the same data format can be used. If the reproduction program corresponding to the compression encoding form of the sampling frequency which the user specified as the program memory 13 of data reproduction apparatus P which formatted the semiconductor media M concerned is not recorded, with the above-mentioned microcomputer 21. When distinguished, a corresponding reproduction program besides the music digital data specified by the user is recorded on the above-mentioned semiconductor media M. At this time, the reproduction program which the device information memorized by the semiconductor media M concerned if needed holds is rewritten. The above-mentioned reproduction program itself is contained in the above-mentioned required information. Recording processing with the above-mentioned microcomputer 21 with which discrimination processings, such as the above-mentioned reproduction program with the above-mentioned microcomputer 21, correspond to the required-information discriminating means of the data supply apparatus in this invention, and record the distinguished above-mentioned required information on the above-mentioned semiconductor media M, It corresponds to the recording device of the data supply apparatus in this invention.

[0023]By the way, block deletion will be performed when eliminating the data recorded on the above-mentioned semiconductor media M when the above-mentioned semiconductor media M were what depended on a flash memory. For this reason, when the above-mentioned music digital data contains the data of two or more music, it is preferred to set the head of the data of

each music as the head of a block. However, when the head of the data of each music is set as the head of a block in this way, the field where data is not recorded will produce in the back of each block. Although this field is not so large as it records the music digital data for one music, since it is left behind while it has been intact, storage capacity of the above-mentioned semiconductor media M will be made useless as a whole. So, in above-mentioned data supply apparatus S concerning this invention. When a free space where data is not recorded on the record structure when recording the above-mentioned music digital data, the reproduction program to hold, etc. on the above-mentioned semiconductor media M occurs, the message information addressed to the user is recorded on the free space. That is, although the above-mentioned music digital data is divided and memorized in the above-mentioned microcomputer 21 according to the block of the above-mentioned semiconductor media M, the quantity of each data in which it was divided at this time is compared with the size of each block, and the capacity of a free space of each block is detected from both difference. In the above-mentioned microcomputer 21, the above-mentioned message information according to the capacity of the free space detected [ above-mentioned ] is chosen, and the above-mentioned message information is recorded on the above-mentioned free space. At text about other data of the player same as an example of the above-mentioned message information as the music digital data specified by a user, and that time. The ranking information of the music digital data which is alike and is popular, the information about the music digital data newly supplied by the above-mentioned data supply apparatus S, other advertisement information, public information, sightseeing information, traffic information, the information on the area that the vending machine was installed, etc. are mentioned. Such message information may be recorded on the accumulation means 23 on which the above-mentioned music digital data is recorded, and it may be made to record it on other recording devices separately. As the genre etc. of the message information to add are displayed on the above-mentioned LCD24, it may be made to make a user choose the genre of the above-mentioned message information, etc. The free space detection processing by comparison of each data based on the above-mentioned microcomputer 21 and a free space corresponds to the free space detection means of the data supply apparatus in this invention. Based on the free space detected [ above-mentioned ], the above-mentioned microcomputer 21 corresponds to the message information addition means of a data supply apparatus [ in / in the processing which makes the above-mentioned message information record on the above-mentioned free space / this invention ].

[0024]The music digital data recorded on the semiconductor media M as mentioned above is played by the above-mentioned data reproduction apparatus P, when a user moves the semiconductor media M and equips the above-mentioned data reproduction apparatus P (S603). It is possible for the button press by a user to begin, and also to also make regeneration by the above-mentioned data reproduction apparatus P perform automatically according to wearing of the above-mentioned semiconductor media M. When insertion of the above-mentioned semiconductor media M is detected and the microcomputer 11 is started like the case where the above-mentioned semiconductor media M are formatted, in the above-mentioned data reproduction apparatus P, with the above-mentioned microcomputer 11. It is distinguished whether the music digital data is recorded on the semiconductor media M concerned. When the music digital data is recorded on the semiconductor media M concerned, The music digital data etc. which were recorded on the above-mentioned semiconductor media M in the state where it was locked by the public key are decoded using the secret key held within the above-mentioned data reproduction apparatus P with the above-mentioned microcomputer 11 (S604). If the above-

mentioned music digital data etc. are decoded with the above-mentioned secret key, ID of the above-mentioned device information currently recorded on the above-mentioned semiconductor media M will be referred to, and it will be checked whether it is in agreement with ID of the data reproduction apparatus P concerned (S605). When ID of the above-mentioned device information currently recorded on the above-mentioned semiconductor media M and ID of the data reproduction apparatus P concerned are in agreement, If conditions, such as the available term, are satisfied after conditions, such as an available term etc. of the data contained in information still more nearly required for the above-mentioned reproduction, are referred to if needed, regeneration by the above-mentioned data reproduction apparatus P will be permitted (S606). On the other hand, when ID of the above-mentioned device information currently recorded on the above-mentioned semiconductor media M and ID of the data reproduction apparatus P concerned are not in agreement, regeneration by the above-mentioned data reproduction apparatus P is not permitted, for example, that is displayed on LCD19 of the above-mentioned data reproduction apparatus P (S607). That is, playback of the music digital data recorded on the above-mentioned semiconductor media M is not permitted, even if a permission is granted only to the data reproduction apparatus P concerned and other data reproduction apparatus P is equipped with the above-mentioned semiconductor media M.

[0025]The example of the above-mentioned data reproduction apparatus after the microcomputer of the above-mentioned data reproduction apparatus starts and there is permission of the above-mentioned regeneration of operation is shown in the flow chart of drawing 7. If there is permission of the above-mentioned regeneration as shown in drawing 7, the above-mentioned microcomputer 11 will search for whether there are a reproduction program currently recorded on the above-mentioned semiconductor media M by the above-mentioned program memory 13 and a different reproduction program (S701). The above-mentioned search compares the reproduction program currently recorded, for example on the above-mentioned semiconductor media M with the reproduction program currently recorded on the above-mentioned program memory 13, or by the above-mentioned data supply apparatus S. When the kind of reproduction program of the device information currently recorded on the above-mentioned semiconductor media M is rewritten, it is possible to carry out by referring to it. When comparing directly the reproduction program currently recorded on the above-mentioned semiconductor media M with the reproduction program currently recorded on the above-mentioned program memory 13, it will be necessary to make the reproduction program currently recorded on the above-mentioned program memory 13 record on the above-mentioned semiconductor media M beforehand but, and. Since the reproduction program transmitted to the above-mentioned semiconductor media M for comparison is used only for comparison and playback of the above-mentioned music digital data is not actually presented from the above-mentioned program memory 13, the capacity of the above-mentioned semiconductor media M will be used vainly. For this reason, the capacity of the above-mentioned semiconductor media M can be saved by not transmitting substance of a reproduction program to the above-mentioned semiconductor media M about the reproduction program already recorded on the above-mentioned program memory 13, but transmitting only dummy information. In this case, when the user is using two or more semiconductor media M, by the difference in an order of wearing to the above-mentioned data reproduction apparatus P of the semiconductor media M. Since the reproduction program which cannot exist will also be generated, about this, it can respond by making it equip with the card which it detects that there is no actual condition of a reproduction program, and a user is told about it, is a manual, and has this.

[0026] When a different reproduction program from being recorded on the above-mentioned program memory 13 was recorded on the above-mentioned semiconductor media M and distinction is performed by the above-mentioned microcomputer 11, the capacity of the reproduction program concerned and the availability of the above-mentioned program memory 13 are measured. When the capacity of the reproduction program concerned is smaller than the availability of the above-mentioned program memory 13, the reproduction program concerned is transmitted to the above-mentioned program memory 13 from the above-mentioned semiconductor media M. When the above-mentioned search is performed with reference to the kind of reproduction program of the device information currently recorded on the above-mentioned semiconductor media M, corresponding to the reproduction program transmitted [above-mentioned], the information on the kind of reproduction program currently recorded on the above-mentioned program memory 13 is rewritten. On the other hand, when the capacity of the reproduction program concerned is larger than the availability of the above-mentioned program memory 13, In order to secure the availability according to the capacity of the reproduction program concerned, all or a part of reproduction program already recorded on the above-mentioned program memory 13 is deleted from the above-mentioned program memory 13 (S702). Selection of the reproduction program deleted from this program memory 13 is performed based on the priority defined, for example according to the frequency in use of each reproduction program. If the low reproduction program of a priority is deleted from the above-mentioned program memory 13 and the availability of the above-mentioned program memory 13 is secured, the reproduction program currently recorded on the above-mentioned semiconductor media M will be transmitted to the above-mentioned program memory 13 (S703). And it is repeated until a different reproduction program by which such transmission processing of the reproduction program is recorded on the above-mentioned semiconductor media M is lost. The transmission processing to the above-mentioned program memory 13 of the above-mentioned reproduction program which begins from search of the reproduction program currently recorded on the above-mentioned semiconductor media M may necessarily be unnecessary. For example, although a power supply will be supplied to the above-mentioned microcomputer 11 based on the switch input by the user having used the switch 18 grade in the state where it is equipped with the above-mentioned semiconductor media M, in the case where the power supply of the above-mentioned data reproduction apparatus P is turned off, Since current supply can distinguish what is depended on wearing, or the thing to depend on a switch input, it may be made to omit transmission processing of the above-mentioned reproduction program in the circuitry shown in above-mentioned drawing 5 in the case of what is depended on the above-mentioned switch input. Thereby, the processing at the time of starting can be reduced and shortening of processing time and power-saving can be attained. Although it searches for the reproduction program currently recorded on the above-mentioned semiconductor media M as mentioned above or processing which refers to the available term of a public key or music digital data and other device information is performed by control of the above-mentioned microcomputer 11, The function besides realized with the account microcomputer 11 is equivalent to the required-information acquisition means in this invention. As a result of search of the above-mentioned reproduction program, the above-mentioned reproduction program is transmitted to the above-mentioned program memory 13 from the above-mentioned semiconductor media M, or the processing which improves environment required for other reproduction based on the above-mentioned required information is equivalent to the automatic setting means in this invention.



[0027] And if a required reproduction program is transmitted to the above-mentioned program memory 13 when playing the new music digital data supplied to the above-mentioned semiconductor media M, regeneration of the above-mentioned music digital data will be automatically performed by directions of button press of a user etc. The music digital data currently recorded on the above-mentioned semiconductor media M namely, via the connector 12, If read with the microcomputer 11, the reproduction program according to it will be read to DSP14 according to control of the microcomputer 11, and music digital data will be supplied to the DSP14 timely. Since selection of a reproduction program is automatically performed when the microcomputer 11 refers to the compression encoding system of the music digital data concerned from the above-mentioned semiconductor media M, the work which a user needs is reduced at the time of playback. Of course, in the case where a compression encoding system is the same and sampling frequencies differ. A user displays an available reproduction program on the above-mentioned LCD19 so that it may be selectable, he may be made to make a user choose, and the microcomputer 11 judges a self resource and it may be made to choose a suitable thing. And in the above-mentioned DSP14, decoding processing of the above-mentioned music digital data is performed using the reproduction program by which reading appearance was carried out [ above-mentioned ]. The music digital data decrypted by the above-mentioned DSP14 is supplied to DAC15, and is changed into an analog electric signal. After said analog electric signal is amplified with the amplifier 16, it is supplied to electroacoustic transducers, such as the earphone 17 and a loudspeaker. And it is changed into an audible signal by the earphone 17, and is outputted to a user's ear as music by it. According to the above-mentioned regeneration, the message information currently independently recorded on the above-mentioned semiconductor media M is also read to the above-mentioned microcomputer 11. According to control of the above-mentioned microcomputer 11, the above-mentioned message information read to the above-mentioned microcomputer 11 is displayed on the above-mentioned LCD19, or is changed into a sound by the above-mentioned DSP14, and is outputted as a sound via the above-mentioned DAC15, the amplifier 16, and the earphone 17.

[0028] Thus, according to the data reproduction apparatus and data supply apparatus concerning the 1 embodiment of this invention, and the data supply system. Music digital data via semiconductor media. When supplying a data reproduction apparatus from a data supply apparatus, the device information which the device information about the device concerned is first recorded on the above-mentioned semiconductor media by the above-mentioned data reproduction apparatus side, and then is recorded on the semiconductor media concerned by the above-mentioned data supply apparatus side is detected, Then, although it plays on the data reproduction apparatus concerned, the music digital data specified by the user based on the device information detected [ above-mentioned ]. In [ the required information distinguished / above-mentioned / after required required information was distinguished is recorded on the semiconductor media concerned with the above-mentioned music digital data, and ] the above-mentioned data reproduction apparatus next, Since environment is automatically set as the required information recorded on the semiconductor media concerned being acquired, and playing the above-mentioned music digital data based on the required information acquired [ above-mentioned ] for necessity, The cheaply available data reproduction apparatus which can receive supply of the above-mentioned music digital data without a user being strongly conscious of a compression encoding system, the code for the prevention from an illicit copy, etc., a data supply apparatus, and a data supply system can be provided. \*\*. In [ based on the kind of reproduction program contained in the device information beforehand recorded on the

above-mentioned semiconductor media in the above-mentioned data supply apparatus, the existence of the additional recording of a reproduction program required for reproduction is distinguished, and ] the above-mentioned data reproduction apparatus, Since the reproduction program by which additional recording was carried out [ above-mentioned ] based on priorities, such as frequency in use of a reproduction program, is transmitted to program memory, even when the capacity of the above-mentioned program memory is not large, it becomes possible to perform regeneration corresponding to various compression encoding systems. Although the music digital data was treated as an example of digital data in the above-mentioned embodiment, It is also possible to apply this invention to the data reproduction apparatus, data supply apparatus, and data supply system which reproduce or supply not the thing restricted to this but the digital signal and alphabetic data of an image. Although distinction with a switch input and wearing also mentioned the circuit of possible drawing 4 as the example in the above-mentioned embodiment as a circuit which can detect wearing of the semiconductor media M, it is not restricted to this and may be made to simplify composition, for example using a circuit like drawing 8 of only wearing detection. The circuit of drawing 8 is also the composition almost same about insertion detection of the above-mentioned semiconductor media M. That is, also in the circuit of drawing 8, when the above-mentioned semiconductor media M are not inserted, the above-mentioned switch Sw1 is open. At this time, the potential of the A point shown in drawing 8 is battery voltage  $V_{bat}$ , as shown in drawing 5. Insertion of the above-mentioned semiconductor media M will close the above-mentioned switch Sw1. If the above-mentioned switch Sw1 is closed, the potential of the above-mentioned A point will once fall rapidly. The capacitor C1 takes for charging, and goes up gradually, and the potential of the above-mentioned lowered A point reaches soon the value to which the partial pressure of the above-mentioned battery voltage  $V_{bat}$  was carried out by the resistance R1 and the resistance R2. Thus, the pulse formed by once reducing potential rapidly is supplied to RS latch 42, and above-mentioned RS latch 42 is set. A set of above-mentioned RS latch 42 will send out an operating command to the power supply converter 43. Thereby, the current supply to the whole circuit is started and the power supply of voltage  $V_{cc}$  is supplied also to the above-mentioned microcomputer 11.

## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]The functional block diagram showing the outline composition of the data reproduction apparatus concerning the 1 embodiment of this invention.

[Drawing 2]The functional block diagram showing the outline device of the data supply apparatus concerning the 1 embodiment of this invention.

[Drawing 3]The figure for explaining the mechanism in which insertion detection of semiconductor media is performed.

[Drawing 4]The discrimination circuit for performing insertion detection of semiconductor media.

[Drawing 5]The figure for explaining the situation of the electrical change of the predetermined point in the above-mentioned discrimination circuit.

[Drawing 6]The flow chart which explains briefly the flow at the time of supplying digital data to the above-mentioned data reproduction apparatus via semiconductor media from the above-mentioned data supply apparatus.

[Drawing 7]The flow chart for explaining the operation in the case of transmitting a reproduction

program to program memory from the above-mentioned semiconductor media in the above-mentioned data reproduction apparatus.

[Drawing 8]The figure showing the other examples of the above-mentioned discrimination circuit.

[Description of Notations]

11, 21 -- Microcomputer

12, 22 -- Connector

13 -- Program memory

14 -- DSP

18, 25 -- Switch

19, 24 -- LCD

23 -- Accumulation means

P -- Data reproduction apparatus

S -- Data supply apparatus

M -- Semiconductor media

## CLAIMS

[Claim(s)]

[Claim 1]In a data reproduction apparatus which reproduces digital data recorded on a removable recording medium, A device information storage means to record device information about the device concerned on the above-mentioned recording medium beforehand, Are based on device information recorded by the above-mentioned device information storage means, and although it reproduces on the device concerned, the above-mentioned digital data. A required-information acquisition means which acquires required required information from the above-mentioned recording medium with which the above-mentioned digital data was recorded, A data reproduction apparatus which possesses an automatic setting means to set up automatically environment required to reproduce the above-mentioned digital data, based on required information acquired by the above-mentioned required-information acquisition means, and is characterized by things.

[Claim 2]The above-mentioned digital data. A reproduction program for reproducing. A memory measure to memorize [ one or more ] and which can be written in. Information about a reproduction program contained in required information which records device information in which a preparation and the above-mentioned device information storage means include information about a reproduction program memorized by memory measure of the device concerned on the above-mentioned recording medium, and by which the above-mentioned required-information acquisition means was recorded on the above-mentioned recording medium. The data reproduction apparatus according to claim 1 which transmits a reproduction program corresponding to the above-mentioned digital data to the above-mentioned memory measure based on information about a reproduction program from which it acquired and the above-mentioned automatic setting means was acquired by the above-mentioned required-information acquisition means.

[Claim 3]The data reproduction apparatus according to claim 1 or 2 which will detect wearing of the above-mentioned recording medium, will switch on a power supply of a device, and will start the above-mentioned device information storage means or the above-mentioned required-information acquisition means, and the above-mentioned automatic setting means if equipped with the above-mentioned recording medium.

[Claim 4]A data reproduction apparatus given in any 1 paragraph of claims 1-3 which include characteristic data with the above-mentioned device information peculiar to a device, and control permission and restriction about reproduction of the above-mentioned digital data based on the above-mentioned characteristic data.

[Claim 5]A data reproduction apparatus given in any 1 paragraph of claims 1-4 whose above-mentioned recording media are semiconductor media.

[Claim 6]A data reproduction apparatus given in any 1 paragraph of claims 1-5 whose above-mentioned digital data are both music data, and both [ either or ].

[Claim 7]In a data supply apparatus which supplies digital data specified as a recording medium removed from a data reproduction apparatus which reproduces digital data by user, A device information detection means to detect device information about the above-mentioned data reproduction apparatus beforehand recorded on the above-mentioned recording medium, A required-information discriminating means which distinguishes required information required to reproduce digital data specified [ above-mentioned ] on the data reproduction apparatus concerned based on the above-mentioned device information detected by the above-mentioned device information detection means, A data supply apparatus which possesses a recording device which records required information distinguished by the above-mentioned required-information discriminating means by the above-mentioned recording medium with which digital data specified [ above-mentioned ] is supplied, and is characterized by things.

[Claim 8]The data supply apparatus according to claim 7 which will detect wearing, will switch on a power supply of a device and will start the above-mentioned device information detection means, a required-information discriminating means, and a recording device if equipped with the above-mentioned recording medium.

[Claim 9]A free space detection means to detect free space of the above-mentioned recording medium with which the above-mentioned digital data and device information are not recorded, The data supply apparatus possessing a message information addition means which adds message information addressed to a user according to the above-mentioned free space detected by the above-mentioned free space detection means according to claim 7 or 8.

[Claim 10]A data supply apparatus given in any 1 paragraph of claims 7-9 whose above-mentioned recording media are semiconductor media.

[Claim 11]A data supply apparatus given in any 1 paragraph of claims 7-10 whose above-mentioned digital data are both music data, and both [ either or ].

[Claim 12]In a data supply system possessing a data reproduction apparatus which reproduces digital data recorded on a removable recording medium, and a data supply apparatus which supplies digital data specified by user to the above-mentioned recording medium, A device information detection means by which the above-mentioned data supply apparatus detects device information about the above-mentioned data reproduction apparatus beforehand recorded on the above-mentioned recording medium, A required-information discriminating means which distinguishes required information required to reproduce digital data specified [ above-mentioned ] on the data reproduction apparatus concerned based on the above-mentioned device information detected by the above-mentioned device information detection means, Digital data

specified [ above-mentioned ] to the supplied above-mentioned recording medium by the above-mentioned required-information discriminating means. A required-information acquisition means which possesses a recording device which records distinguished required information and in which the above-mentioned data reproduction apparatus acquires the above-mentioned required information recorded by the above-mentioned recording device from the above-mentioned recording medium, A data supply system which possesses an automatic setting means to set up automatically environment required to reproduce digital data which was supplied to the same recording medium, and which was specified [ above-mentioned ] based on the above-mentioned required information acquired by the above-mentioned required-information acquisition means, and is characterized by things.

[Claim 13]It is a thing provided with a memory measure which memorizes one or more reproduction programs for the above-mentioned data reproduction apparatus to reproduce digital data supplied to the above-mentioned recording medium and which can be written in. Are, information about a reproduction program memorized by the above-mentioned memory measure of the data reproduction apparatus concerned is included in the above-mentioned device information, and the above-mentioned required-information discriminating means of the above-mentioned data supply apparatus based on device information recorded on the above-mentioned recording medium to the above-mentioned memory measure of the data reproduction apparatus concerned. Distinguish whether a reproduction program corresponding to digital data specified [ above-mentioned ] is memorized, and by the above-mentioned required-information discriminating means. When there is distinction that a reproduction program corresponding to digital data specified [ above-mentioned ] is not memorized by the above-mentioned memory measure of the data reproduction apparatus concerned, The data supply system according to claim 12 by which the above-mentioned recording device records a reproduction program corresponding to digital data specified [ above-mentioned ] at least on the above-mentioned recording medium.

[Claim 14]If the above-mentioned data reproduction apparatus is equipped with the above-mentioned recording medium, the data reproduction apparatus concerned will detect wearing of the above-mentioned recording medium, and will switch on a power supply, If the above-mentioned required-information acquisition means and the above-mentioned automatic setting means are started and the above-mentioned required information is acquired from the above-mentioned recording medium by the above-mentioned required-information acquisition means, The data supply system according to claim 13 by which the above-mentioned automatic setting means transmits a reproduction program recorded on the above-mentioned recording medium to the above-mentioned memory measure based on the above-mentioned required information.

[Claim 15]A data supply system given in any 1 paragraph of claims 12-14 which include characteristic data with the above-mentioned device information peculiar to a device, and control permission and restriction based on the above-mentioned characteristic data about reproduction of the above-mentioned digital data based on the above-mentioned data reproduction apparatus.

[Claim 16]A data supply system given in any 1 paragraph of claims 12-15 in which the above-mentioned data supply apparatus will detect wearing, will switch on a power supply, and will start the above-mentioned device information detection means, the above-mentioned required-information discriminating means, and the above-mentioned recording device if the above-mentioned data supply apparatus is equipped with the above-mentioned recording medium.

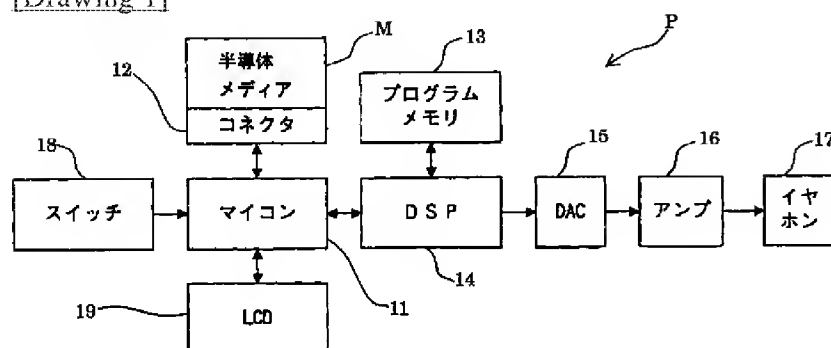
[Claim 17]A free space detection means by which the above-mentioned data supply apparatus detects free space of the above-mentioned recording medium with which the above-mentioned

digital data and device information are not recorded, A data supply system given in any 1 paragraph of claims 12-16 possessing a message information addition means which adds message information addressed to a user according to the above-mentioned free space detected by the above-mentioned free space detection means.

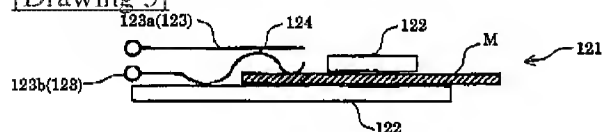
[Claim 18] A data supply system given in any 1 paragraph of claims 12-17 whose above-mentioned recording media are semiconductor media.

[Claim 19] A data supply system given in any 1 paragraph of claims 12-18 whose above-mentioned digital data are both music data, and both [ either or ].

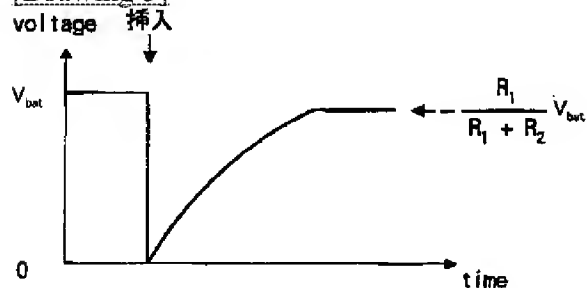
[Drawing 1]



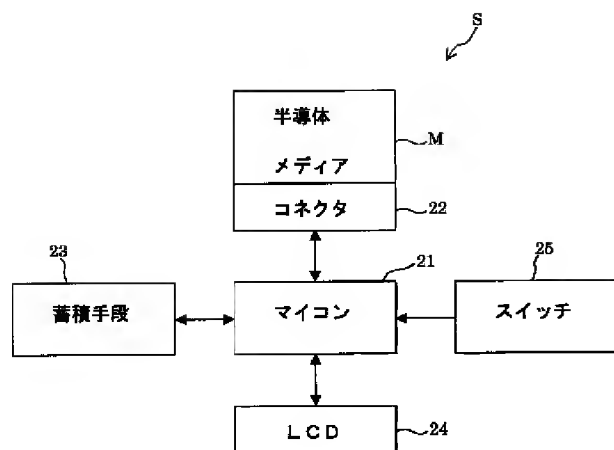
[Drawing 3]



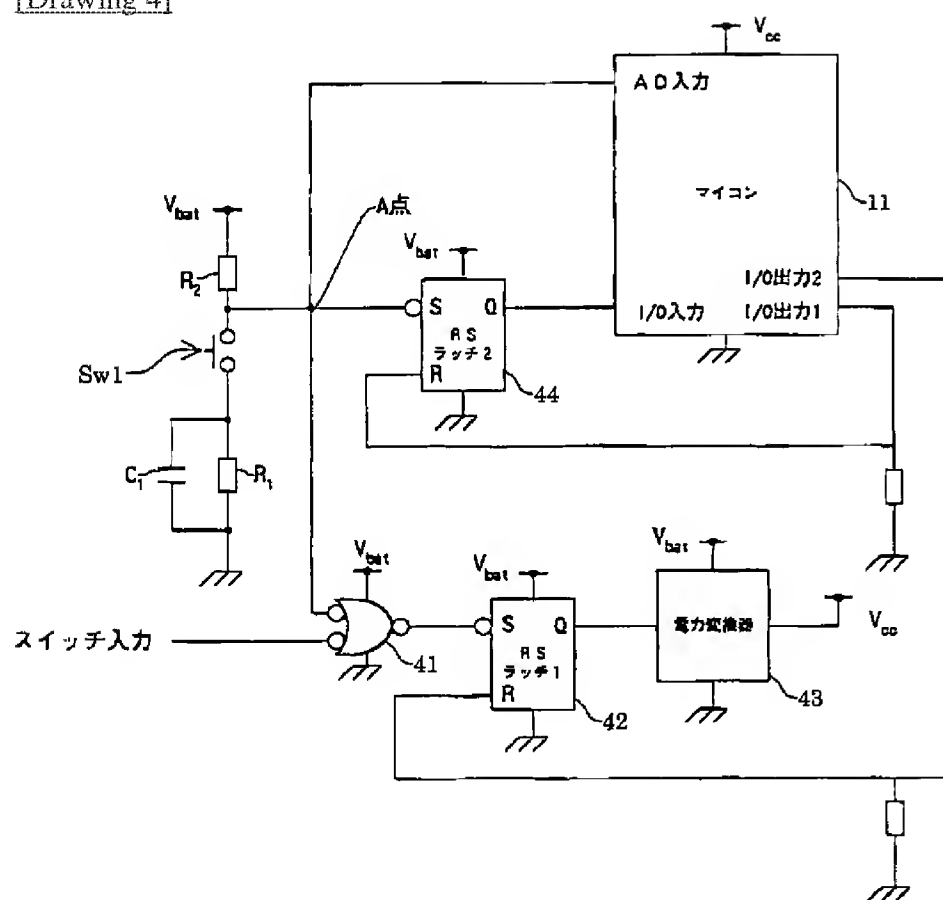
[Drawing 5]



[Drawing 2]

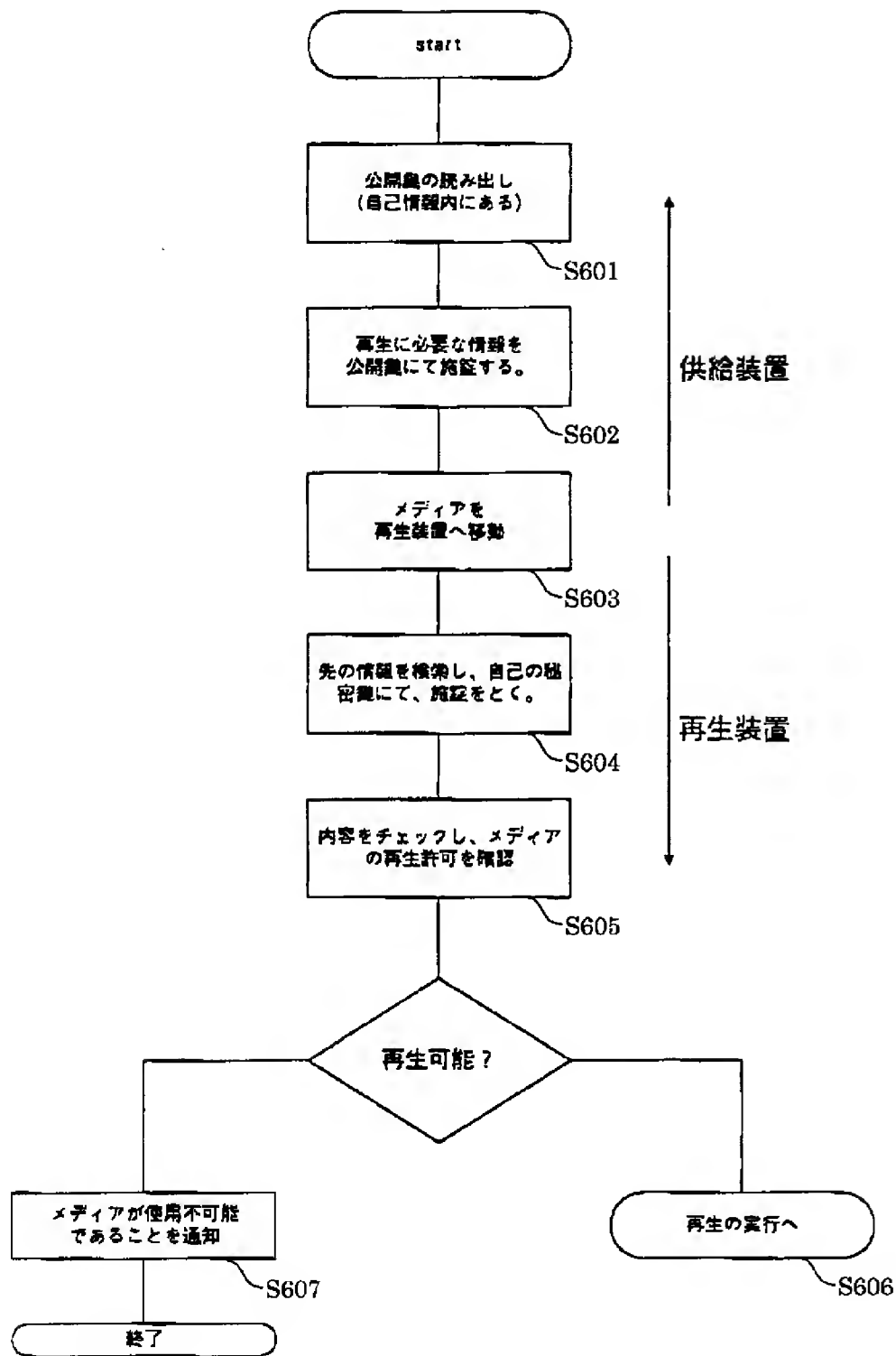


[Drawing 4]

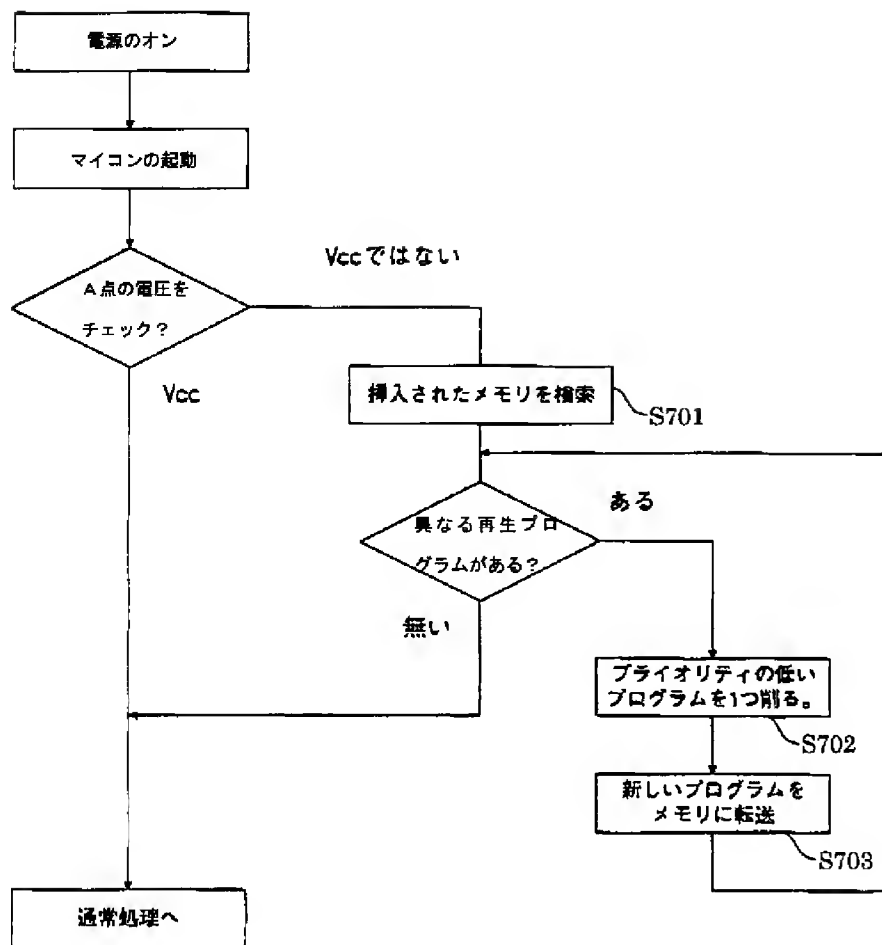


[Drawing 6]





[Drawing 7]



[Drawing 8]

